

U.S. Patent Application Serial No. 09/871,250
Amendment dated September 30, 2003
Reply to Office Action of July 18, 2003

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended): A substrate cleaning system comprising:

a system body capable of being sealed;

a loading/unloading booth comprising a substrate carry-in section in which a plurality of substrates are stocked and standby to be carried in before cleaning treatment is applied to them and a substrate carry-out section in which a plurality of substrates are stocked and standby to be carried out after cleaning treatment was applied to them;

a processing booth provided with at least one sheet-type substrate cleaning chamber in which a cleaning treatment can be applied to a plurality of substrates by a plurality of cleaning solutions; and

a robot booth provided with a transport robot for transporting the substrates one by one between the processing booth and the loading/unloading booth;

wherein the respective booths are partitioned by partition walls;

the loading/unloading booth and the robot booth are respectively installed ~~on opposite sides~~ of in the system body;

the robot booth is sandwiched between the loading/unloading booth and the processing booth; and

the loading/unloading booth has openings which are openable to an operating space provided outside the system body.

Claim 2 (Canceled)

3. (Previously presented): The substrate cleaning system according to Claim 1, wherein a substrate holding section is provided for holding carriers arranged such that the substrates to be stocked in the carry-in section and carry-out section of the loading/unloading booth are aligned horizontally with a given alignment pitch in a vertical direction, and clean air flowing inside the loading/unloading booth is directed from the carry-in section to the carry-out section.

4. (Previously presented): The substrate cleaning system according to Claim 1, wherein the carry-in section and the carry-out section have substrate holding sections for holding carriers in which a plurality of substrates are stocked in a horizontal state with a given alignment pitch in a vertical direction, and an elevation positioning unit for positioning the substrates to be carried in or out from the carriers.

5. (Previously presented): The substrate cleaning system according to Claim 4, wherein each substrate holding section has at least two holding tables which hold each carrier and are disposed vertically with a given interval.

6. (Previously presented): The substrate cleaning system according to Claim 1, wherein the transport robots in the robot booth are formed of a twin arm robot each provided with a pair of hand sections movable vertically and horizontally, and wherein one of the hand sections transports the substrate before they are subjected to a cleaning treatment while the other hand section transports the substrate after they are subjected to the cleaning treatment.

Claim 7 (Canceled)

8. (Previously presented): The substrate cleaning system according to Claim 1, wherein the robot booth has a substrate reversing unit which turns each substrate upside down on its front and back face.

9. (Previously presented): The substrate cleaning system according to Claim 1, the inner wall surface of the processing booth has a corrosion resistance coating treatment thereon, and the other wall side of the processing booth has a vinyl chloride resin and oxidation resistance painting treatment thereon.

Claim 10 (Canceled)

11. (Previously presented): The substrate cleaning system according to Claim 14, wherein the chamber body is a sealed container provided with an openable substrate carry-in gate.

12. (Previously presented): The substrate cleaning system according to Claim 14, wherein the chamber body comprises a chemical supply section for supplying cleaning solution onto a substrate surface supported by the substrate rotating unit, an inert gas supply section for supplying inert gas so as to discharge and exchange cleaning solution, and a drain section provided in each processing bath so as to drain cleaning solution or inert gas in each processing bath.

13. (Previously presented): A substrate cleaning system comprising:
a system body capable of being sealed;
a loading/unloading booth comprising a substrate carry-in section in which a plurality of substrates are stocked and standby to be carried in before cleaning treatment is applied to them and a substrate carry-out section in which a plurality of substrates are stocked and standby to be carried out after cleaning treatment was applied to them;
a processing booth provided with at least one sheet-type substrate cleaning chamber in which a cleaning treatment can be applied to a plurality of substrates by a plurality of cleaning solutions;
and

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a robot booth provided with transport robots for transporting the substrates one by one between the processing booth and the loading/unloading booth;

wherein the respective booths are partitioned by partition walls;

the transport robots in the robot booth are formed of a twin arm robot each provided with a pair of hand sections, movable vertically and horizontally;

one of the hand sections transports the substrate before they are subjected to a cleaning treatment while the other hand section transports the substrate after they are subjected to the cleaning treatment; and

wherein each substrate holding section provided at the tip end of each hand section of the transport robot has a soft landing type supporter for transporting and supporting the lower surface of each substrate.

14. (Previously presented): A substrate cleaning system comprising:

a system body capable of being sealed;

a loading/unloading booth comprising a substrate carry-in section in which a plurality of substrates are stocked and standby to be carried in before cleaning treatment is applied to them and a substrate carry-out section in which a plurality of substrates are stocked and standby to be carried out after cleaning treatment was applied to them;

U.S. Patent Application Serial No. **09/871,250**
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a processing booth provided with at least one sheet-type substrate cleaning chamber in which a cleaning treatment can be applied to a plurality of substrates by a plurality of cleaning solutions; and

a robot booth provided with a transport robot for transporting the substrates one by one between the processing booth and the loading/unloading booth;

wherein the respective booths are partitioned by partition walls; and

wherein a sheet-type substrate cleaning chamber in the processing booth is provided with a plurality of circular processing baths which are aligned vertically, and comprises a chamber body which moves vertically, and a substrate rotating unit which is disposed concentrically with the chamber body at the center and rotates a piece of substrate horizontally while supporting it horizontally, and wherein the substrates supported by the substrate rotating unit and the circular processing baths are positioned when the chamber body moves up and down vertically.